

WHAT IS CLAIMED IS

1. A magnetic latching apparatus for use in a hard disk drive, in which a magnetic head is automatically positioned at a parking zone of a magnetic disk as an arm returns back at an initial position when an electric current applied to the hard disk drive is interrupted, comprising:

permanent magnets disposed on a predetermined portion at an outer end of the arm; and

means for locking and unlocking the arm by means of a magnetic force of the permanent magnets, the means being mounted to be associated with the permanent magnet to repulse the permanent magnets when the electric current is applied to the hard disk drive and to attract the permanent magnet when the electric current applied to the hard disk drive is interrupted.

2. A magnetic latching apparatus for use in a hard disk drive as claimed in claim 1, wherein the permanent magnets has one polarity at one end thereof and the other polarity at the other end thereof, of which one end is fixed to the arm and the other end faces with the means for locking and unlocking arm.

3. A magnetic latching apparatus for use in a hard disk drive as claimed in claim 2, wherein the means for locking and unlocking the arm includes a core having flanges which respectively are formed at each end thereof and which have the same polarities as these of the permanent magnets when the electric current is applied to the hard disk drive, and a coil wound on the core.

4. A magnetic latching apparatus for use in a hard disk drive as claimed in claim 1, wherein the permanent magnet has one polarity at one end thereof and the other polarity at the other end thereof, of which both ends face with the means for locking and unlocking the arm and of which a portion except for both ends of the permanent magnet is fixed to the arm.

5. A magnetic latching apparatus for use in a hard disk drive as claimed in claim 4, wherein the means for locking and unlocking the arm includes a core having connectors which respectively are formed at each end thereof and have the same polarities as these of the permanent magnets when the electric current is applied to the hard disk drive, a bobbin combined with the core to be in parallel to the permanent magnets, and a coil wound on the core.

6. A magnetic latching apparatus for use in a hard disk drive as claimed in claim 4, wherein the means for locking and unlocking the arm includes a pair of bobbins which respectively have flanges formed at each end thereof and respectively having the same polarities as these of the permanent magnet when the electric current is applied to the hard disk drive, the pair of bobbins being disposed to be spaced at a predetermined apart from each other, and coils respectively wound on each bobbin.

7. A magnetic latching apparatus for use in a hard disk drive as claimed in claim 6, wherein the pair of the bobbins are connected with each other by means of a nonconductor fixed to one ends of the bobbins.

8. A magnetic latching apparatus for use in a hard disk drive as claimed in claim 7, wherein the core extend through each bobbin and have nonconductors connected to one ends of the core and connectors formed on the other ends of the core, to which the permanent magnets can be detachably connected.

9. A magnetic latching apparatus for use in a hard disk drive as claimed in claim 1, wherein a damping member is

disposed between the outer end of the arm and the permanent magnet so as to connect the arm to the permanent magnet.

10. A magnetic latching apparatus for use in a hard
5 disk drive as claimed in claim 2 or 4, wherein the permanent magnet has a magnetic force equal to and more than 50 gf.

11. A magnetic latching apparatus for use in a hard
disk drive as claimed in claim 3, 5 or 8, wherein the core to
10 which the permanent magnet is connected is provided with a hinge assembly at an end thereof so as to ensure a connection of the core to the permanent magnet.

12. A magnetic latching apparatus for use in a hard
15 disk drive as claimed in claim 9, wherein the hinge assembly includes a first hinge portion formed on a surface of the outer end of the core and a second hinge portion which is rotatably combined by a hinge pin to the first hinge portion and faces the permanent magnet in a surface to surface
20 connecting manner.

13. A magnetic latching apparatus for use in a hard
disk drive as claimed in claim 3, 5 or 8, wherein the means

for locking and unlocking the arm is received in a case,
except for a portion of the core to which the permanent magnet
is locked.

5 14. A magnetic latching apparatus for use in a hard
disk drive as claimed in claim 3, 5 or 8, wherein the means
for locking and unlocking the arm interrupts the electric
current supplied to the coil at the same time that the arm is
unlocked, thereby reducing a spending of the electric current.